

Attachment 1: Public Comments and Responses

On February 21, 2003, the Puget Sound Treaty Tribes and the Washington Department of Fish and Wildlife (co-managers) provided National Marine Fisheries Service (NMFS) a resource management plan (RMP) for the 2003 fishing season, May 1, 2003, through April 30, 2004. The 2003 RMP, dated February 19, 2003, is titled the “Puget Sound Comprehensive Chinook Management Plan: Harvest Management Component.” The 2003 RMP provides the structure through which tribal and state jurisdictions will jointly manage Puget Sound salmon fisheries and the steelhead net fisheries that may affect listed Puget Sound chinook salmon.

NMFS published notice of its Proposed Evaluation and Pending Determination on the 2003 RMP for public review and comment on April 2, 2003 (68 FR 16001). The comment period closed on April 17, 2003. Washington Trout submitted comments to NMFS on the Proposed Evaluation and Pending Determination during this public comment period. No other comments were received during the public comment period. NMFS has reviewed the comments received and discussed the substantive issues with the co-managers. Several of the comments were addressed and reflected in NMFS’ final Evaluation and Recommended Determination, but no changes were required of the 2003 RMP.

Response to Comments

Comment 1: The commenter questioned the use of incomplete catch and escapement information in the calculation of exploitation rates. The commenter was concerned that without separate independent variables of freshwater and marine survival, the resultant adult-to-adult relationships will have far too much variability to be of any real value for management planning. Additionally, the commenter was concerned with the high degree of uncertainty associated with the exclusive use of code-wired-tag (CWT) recovery data for hatchery fish. The commenter referenced an attached, but undated 12-page report titled “A spawning escapement objective methodology for chinook salmon, coho salmon and steelhead trout: maximum sustainable smolt production”, which was attached to the comments.

Response: At this time, CWT data provides the best available information to estimate survival rates by age and mortality rates by fishery. NMFS recognizes that there will be some uncertainty associated with whatever information is available, and considers the degree of uncertainty when making its decisions. To address these uncertainties, the data analyses incorporated variability around the productivity and capacity stock-recruit parameters, survival variables and management error. In making its determination on the 2003 RMP, NMFS Northwest Region’s Sustainable Fisheries Division recommended that the data uncertainties did not represent a significant risk in the short term to the Evolutionarily Significant Unit (ESU), and that the benefits to the ESU in immediate implementation of the one-year plan outweighed the risks represented by the uncertainty in the data. It is noted that separate variables of marine survival and freshwater survival were considered by the co-managers in the derivation of management objectives for the Skagit, Stillaguamish, and the Snohomish Management Units.

The undated 12-page report (no author indicated) titled “A spawning escapement objective methodology for chinook salmon, coho salmon and steelhead trout: maximum sustainable smolt production,” requires more review. The report was forwarded to the NMFS Northwest Fisheries Science Center and the co-managers for further review and possible future applications.

Comment 2: For several management units, the commenter compared the 2003 RMP’s critical abundance thresholds with NMFS’ lower (critical) threshold. Through this comparison, the commenter noted that NMFS’ lower thresholds were consistently below the 2003 RMP’s critical abundance thresholds. The commenter questioned whether NMFS factored compensatory mortality into the development of NMFS’ lower critical thresholds.

Response: NMFS’ critical thresholds are consistent with the concepts in the Viable Salmon Populations (VSP) document (NMFS 2000b as cited in Proposed Evaluation and Pending Determination), which includes the concept of compensatory mortality (see page 12 of NMFS 2000b as cited in Proposed Evaluation and Pending Determination). In addition, NMFS considered methods that explicitly took into account compensatory mortality where sufficient information was available. The co-managers define the 2003 RMP’s critical abundance thresholds as a “spawning escapement level below which the co-managers will exercise maximum regulatory effect to minimize fishery-related mortalities and maximize spawning escapement” (page 67 of the 2003 RMP). The co-managers state that these lower thresholds are “set above the level at which a population may become demographically unstable, or at risk to loss of genetic integrity.” The co-managers have included this management buffer in the development of the critical abundance threshold “to avoid the population escapement actually falling to the range of instability” (page 23 of the 2003 RMP). In developing NMFS’ lower (critical) thresholds, NMFS did not include this buffer for management purposes. Without a management buffer, it is logical to conclude that NMFS’ lower (critical) thresholds would be lower than the 2003 RMP’s critical abundance threshold. The rebuilding exploitation rates derived by NMFS have been effectively applied to assess fishery actions affecting listed Puget Sound chinook salmon since 1999 (NMFS 1999, 2000a, 2001a as cited in Proposed Evaluation and Pending Determination).

For those populations for which the 2003 RMP identifies a critical abundance threshold, when the 2003 RMP’s critical abundance thresholds are compared against NMFS’ derived critical thresholds, the 2003 RMP’s thresholds were equal to or greater than the NMFS’ derived critical thresholds. However, in the Stillaguamish Management Unit, NMFS derived separate critical thresholds for the two extant chinook salmon populations (North Fork Stillaguamish River and the South Fork Stillaguamish River populations). The 2003 RMP did not establish a critical abundance threshold for the South Fork Stillaguamish River population.

Actual impacts to the South Fork Stillaguamish River population under the one-year 2003 RMP will depend on the returning abundance in 2003, whether it is above the interim escapement goal, below the interim escapement goal but above the critical abundance threshold, or below the critical abundance threshold. The preliminary 2003 forecast of the adult return to Stillaguamish

River is projected to be 2,050 (NMFS 2003 as cited in Evaluation and Recommended Determination), well above the management unit's critical abundance threshold of 650. Based on the proportions of the recent observed escapement, the proportion of the 2003 forecast bound for the South Fork Stillaguamish River would be 568 (27.7% of 2,050). The anticipated 2003 total exploitation rate on the Stillaguamish River Management Unit is 18 percent (based on the preliminary pre-season FRAM model run 1603). The anticipated escapement into the South Fork Stillaguamish River in 2003 is 466 ($568 - (568 \times .18)$), which is above the NMFS' derived critical abundance of 200.

Based on preliminary 2003 run size forecast information, past performance of the fisheries under similar conditions, and the current status of the population, it is expected that the returning population will be above the co-managers' critical abundance threshold for the Stillaguamish Management Unit during the implementation of the 2003 RMP. NMFS therefore concluded that there would likely be no elevated level of risk in 2003 due to the lack of a critical abundance threshold in the 2003 RMP for the South Fork Stillaguamish River population.

Comment 3: Page 6 of the Proposed Evaluation and Pending Determination states that "[u]nfortunately, a spawner-recruit relationship database is not yet available for most populations. For the Lake Washington, Green, Skokomish, and Mid-Hood Canal Management Units, the 2003 RMP's recovery exploitation rate ceilings are generally established at the low level of exploitation rates observed in the late 1990's, which resulted in stable or increasing spawning escapement." The commenter suggested that these sentences imply that the past RMP management strategy is responsible for the increased escapement. The commenter further suggested that improved survival may be more responsible for the observed increasing escapement trend.

Response: Overall, escapements observed under the 2001 RMP have been some of the highest during the five-year period reviewed for Puget Sound chinook salmon populations. NMFS agrees with the commenter that there is some evidence that marine survival for Puget Sound chinook salmon has increased in recent years. These conditions are expected to continue for the chinook salmon populations managed under this one-year 2003 RMP. The management objectives in the 2001 RMP are very similar to the management objectives in the 2003 RMP, which is being reviewed by NMFS. Many of the 2003 RMP's recovery exploitation rates and NMFS' rebuilding exploitation rates are based on periods of lower marine survival affecting returning adult chinook salmon. All other parameters being equal, at higher marine survival rates the rebuilding exploitation rates would be greater. Based on the past performances of the fisheries under similar conditions, the current status of the populations, and the preliminary 2003 return information, it is expected that the 2003 RMP will continue the stable to increasing five-year trends in escapement, as depicted in Table 6 of the Proposed Evaluation and Pending Determination. NMFS recognizes that it is a combination of factors that have contributed to the observed stable to increasing five-year trends in escapement, including harvest actions. The 2001 RMP is not solely responsible for those trends. The pertinent text in the Evaluation and Recommended Determination has been modified to reduce this possible confusion.

Comment 4: The commenter suggested that the use of pre-terminal southern United States (PT SUS) exploitation rates in the 2003 RMP is misleading since these exploitation rates do not include fishery exploitation occurring in the terminal fisheries.

Response: The Green River, Skokomish, Mid-Hood Canal, and Lake Washington Management Units are proposed to be managed in the 2003 RMP through application of PT SUS exploitation rates (see Table 2 of the Proposed Evaluation and Pending Determination). The commenter is correct that PT SUS exploitation rate management objectives in the 2003 RMP do not include exploitation rates occurring in the terminal fisheries. However, NMFS assessed the 2003 RMP based on the anticipated total exploitation rate and through evaluation of other management objectives applied to manage terminal fisheries affecting the management units. Based on the 2003 RMP, the co-managers will manage the terminal fisheries in the Green River and the Skokomish Management Units to meet or exceed the escapement goals of 5,800 (page 142 of the 2003 RMP) and 3,650 (page 160 of the 2003 RMP), respectively. The Skokomish Management Unit's escapement goal of 3,650 spawners is composed of 1,650 natural-origin spawners and 2,000 hatchery-origin spawners. In Appendix A, for the Mid-Hood Canal Management Unit, the co-managers state that "measures will be considered in order to ensure that the total SUS [southern United States] exploitation rate will not exceed 15%" (page 166 of the 2003 RMP). The SUS exploitation rate management objective includes the exploitation rate occurring in terminal fisheries. The preliminary pre-season FRAM model run 1603 (dated April 9, 2003), confirms the co-managers will manage the 2003 Mid-Hood Canal Management Unit fisheries to achieve this 15 percent SUS exploitation rate. Similar to recent years, in this preliminary pre-season modeled run the exploitation rate of the Mid-Hood Canal Management Unit in terminal fisheries is very low, at an anticipated 1 percent in 2003. For the Lake Washington Management Unit, given similar forecasts of abundance in 2003 to recent years, NMFS expects that total exploitation rates, including the terminal fisheries exploitation rate, will remain similar to the rates experienced during the past two seasons. This is supported by the preliminary 2003 FRAM model run 1603, dated April 9, 2003, which summarizes the anticipated impacts from the 2003 fisheries. It is expected that escapement in this management unit will remain stable under the 2003 RMP. Lake Washington Management Unit's populations are classified as being between the lower and upper escapement thresholds (Table 6 of the Proposed Evaluation and Pending Determination).

Comment 5: The commenter questioned how forecast abundance estimates used in pre-season modeling were derived.

Response: The Proposed Evaluation and Pending Determination document did not provide a description of how the forecast abundance estimates were derived. A short description of how forecast abundance estimates were derived was inserted into the Evaluation and Recommended Determination. In summary, the methods used by the co-managers to derive the forecast abundance estimates vary by management units. Some methods are fairly comprehensive. As an example, for the Skagit River return of natural spring chinook salmon, the co-managers'

methodology begins with an examination of the expected age composition of returning spring chinook. The proportion of each age class in the 2003 return is then calculated. Based on this analysis, the total estimated return to the Skagit River is derived by adding the number of chinook salmon predicted to return as 3-year olds in 2003 (from the 2000 brood year), the number of chinook salmon forecast to return as 4-year olds (from the 1999 brood year), and the forecast 5-year old chinook return (from the 1998 brood year). In Puget Sound, production is generally dominated by age-four adults. Other methods used to derive the forecast abundance are less sophisticated, and rely on recent abundance averages. However, NMFS considers these forecasts the best scientific information available for the anticipated returns in 2003 for Puget Sound chinook salmon. The 2003 run size expectations for the various Puget Sound management units are reported in the Pacific Fishery Management Council's (PFMC) Preseason Report 1, Stock Abundance Analysis for 2003 Ocean Salmon Fisheries. Methodologies for the 2003 estimates used in the PFMC pre-season planning process are management unit specific and are described in annual Puget Sound management reports.

Comments 6: The commenter questioned the appropriateness of allowing impacts on a below-critical threshold population just because the 2003 RMP demonstrates the likelihood of survival and recovery of the entire ESU in the wild would not be appreciably reduced.

Response: Page 16 of the Proposed Evaluation and Pending Determination states that for populations at or below their critical thresholds, fishing-related mortality on the populations must not appreciably increase genetic and demographic risks facing the population and must be designed to permit achievement of viable functions, unless the RMP demonstrates the likelihood of survival and recovery of the entire ESU in the wild would not be appreciably reduced by greater risks to an individual population. This statement in the Proposed Evaluation and Pending Determination is taken directly from the section (b)(4)(i)(B) of the 4(d) Rule. To what extent each population is or is not required to be healthy to support recovery of the ESU is yet to be decided by the Technical Recovery Team (TRT). In the meantime, if the ESU as a whole is demonstrated to not be at risk due to effects on a local population, then a certain increased level of risk on that population may be allowed.

Comment 7: The commenter questioned the use of the approach outlined in the response to Comment 6 in assessing the Dosewallips River population, which is classified as being below its lower threshold.

Response: NMFS followed directions provided in the 4(d) Rule (outlined in the response to Comment 6) in assessing the effects of the RMP on populations below their critical threshold, including the Dosewallips River population. Based on the preliminary 2003 forecast, past performance of the fishery under similar conditions, current status of the population, it is expected that the 2003 return into the Dosewallips River will continue to be below the VSP spawner abundance range guidance for a population. The escapement trend in the Dosewallips River has been declining over the four-year period reviewed (see Table 5 of the Evaluation and Recommended Determination). Additional risk to the Dosewallips River population within the

Mid-Hood Canal Management Unit may be expected in 2003, in part, due to the lack of an individual critical abundance threshold for the Dosewallips River population, to provide management guidance. The recent four-year average escapement of 47 into this system represents 0.13 percent of the recent five-year combined average escapement of 36,939 into the entire ESU, as depicted in Table 5 of the Evaluation and Recommended Determination.

The Dosewallips River population is within the Mid-Hood Canal Management Unit. The characteristics of this population, including life history and run timing, are represented by the other population in the Hood Canal region and by other populations within the ESU. Additionally, the role of the undefined spawning aggregations in the adjacent Hamma Hamma and the Duckabush Rivers in recovery and their relationship with the Dosewallips River population may be clarified as further information becomes available. Because it is possible that production in the Hamma Hamma and the Duckabush Rivers may contribute to the stability of the Dosewallips River population, NMFS' assessment of the impacts of the 2003 RMP on the Dosewallips should be considered conservative. Based on these considerations, NMFS concludes in the Evaluation and Recommended Determination that the potential higher risk that this population may be expected to experience in 2003, in this one-year harvest management plan, will not appreciably reduce the the likelihood of the ESU's survival and recovery.

Comment 8: The Proposed Evaluation and Pending Determination states on page 27 that “[i]n addition, spawner recruit functions used to derive many of the 2003 RMP’s objectives express the impacts of all the factors that influence productivity, including nutrient input.” The commenter suggested that the use of “many” in this sentence is misleading.

Response: The 2003 RMP’s recovery exploitation rate management objectives derived for the Skagit Summer/Fall, Skagit Spring, Stillaguamish, and Snohomish Management Units are based on a spawner-recruit relationship that directly or indirectly take into account all of the factors that influence chinook salmon productivity, including nutrient input. Additionally, NMFS has developed rebuilding exploitation rates for the North Fork Nooksack River, South Fork Nooksack River, upper Skagit River, lower Skagit River, lower Sauk River, North Fork Stillaguamish River, South Fork Stillaguamish River, Skykomish River, and the Green River populations, which are also based on a spawner-recruit relationship that considered all factors that influence current productivity, including nutrient input. A total of four 2003 RMP’s recovery exploitation rates and nine NMFS’ recovery exploitation rate take into account all of the factors that influence chinook salmon productivity. The Merriam-Webster dictionary defines the word “many” as “consisting of or amounting to a large but definite number,” and the word “several” as “more than two but fewer than many.” The use of several in the sentence questioned by the commenter, instead of many, may be more accurate. NMFS modified the Evaluation and Recommended Determination by replacing “many” with “several” in the sentence in question.

Comment 9: Page 29 of the Proposed Evaluation and Pending Determination cites Hard (in press) who found that, in general, reducing the exploitation rate reduced the selection intensity, and that potential changes in life history traits under most of the scenarios he examined were

modest at best. Most recovery exploitation rates in the 2003 RMP are less than 40 percent. Exploitation rates below 40 to 50 percent generally resulted in no to low changes in the biological traits examined. The commenter states that a number of management units have total exploitation rates that are greater than 50 percent, implying that in these cases that the potential changes in life history due to selection intensity traits maybe more than modest.

Response: Based on the preliminary pre-season FRAM model run 1603 (dated April 9, 2003), two management units (Nisqually and the Skokomish Management Units) of the 15 management units in the 2003 RMP will experience total exploitation rates greater than 50 percent during the 2003 season. The fisheries in the Nisqually and Skokomish Management Units are managed by the co-managers to achieve established escapement goals. There are no trends in age-class structure observed in returning adult Puget Sound chinook salmon populations over the past 20 years that would suggest potential age selectivity effects of the Puget Sound fisheries. Based on the best available information, the anticipated exploitation rates of greater than 50 percent in 2003 in these cases are expected to result in no, or at worst modest, changes in the biological traits of these populations in this one-year 2003 RMP. However, NMFS recognizes the potential for selective effects of fisheries and will continue to monitor them.

Comment 10: The commenter questions the hypothesis that the real limiting factor of Skagit River chinook salmon is the amount of blind channel juvenile rearing habitat in the estuary.

Response: Recovery exploitation rates proposed in the 2003 RMP for the Skagit Summer/Fall and the Skagit Spring Management Units reflect the current productivity of the populations. The 2003 RMP's recovery exploitation rate for the Skagit River management units is based on the observed Skagit River spawner-recruit ratio, which is influenced by all limiting factors influencing current production. Although one limiting factor maybe the amount of blind channel juvenile rearing habitat in the estuary, by using the observed spawner-recruit ratio, the co-managers in developing the 2003 RMP's rebuilding exploitation rate do not hypothesize that the amount of blind channel juvenile rearing habitat in the estuary is the only limiting factor affecting productivity. NMFS has also developed rebuilding exploitation rates for the upper Skagit River, lower Skagit River, and the lower Sauk River (the populations within the Skagit Summer/Fall Management Unit). NMFS' rebuilding exploitation rates for these populations are also based on the observed spawner-recruit ratio. NMFS is in the process of developing similar rebuilding exploitation rates for the remaining chinook salmon populations within the Skagit River: the upper Sauk River; Suiattle River; and the upper Cascade River populations (all populations within the Skagit Spring Management Unit).

Comment 11: Page 29 of the Proposed Evaluation and Pending Determination states that Puget Sound salmon gillnet fisheries do not appear to be any more age-selective than gear types like purse seines, which use small mesh and are considered to be relatively non-selective. The commenter questioned the conclusion that gillnets are non-selective.

Response: NMFS agrees with the commenter that gillnets can be operated as selective gear. However, there are many factors that determine whether potential fishing-related selectivity is realized (e.g., mate selection, growth rate, environmental condition). In reviewing available information, the overall age composition of the Puget Sound gillnet chinook salmon harvest is very similar to that of the purse seine harvest. Purse seines are generally considered relatively non-selective gear. If Puget Sound purse seines are considered a non-selective gear type, then the available information suggests that in this particular case, the Puget Sound gillnet is also a non-selective gear for age. There are no trends in age-class structure observed in returning adult Puget Sound chinook salmon populations over the past 20 years that would suggest potential age selectivity effects of the Puget Sound gillnet fisheries (see Figure 3 of the Proposed Evaluation and Pending Determination). NMFS and the co-managers will continue to monitor the fisheries for evidence of selective effects.

Comment 12: The commenter expressed the concern that the loss of the North Fork Nooksack River population would clearly cause a reduction in genetic diversity of the listed chinook salmon ESU.

Response: Additional risk to the North Fork Nooksack River population may be expected in 2003, under the 2003 RMP, primarily due to the anticipated total exploitation rate, in which the Canadian fisheries will account for the majority of the exploitation, exceeding NMFS' rebuilding exploitation rate ceiling for this population. The exploitation rate in 2003 is expected to exceed NMFS' rebuilding exploitation rate ceiling for this population by three percentage points (see Table 15 of the Evaluation and Recommended Determination). The population's classification is considered to be below the lower threshold, but has shown an increasing trend in escapement (see Table 6 of the Evaluation and Recommended Determination). The 4(d) Rule criterion for populations at or below their critical thresholds is that the fishing-related mortality under the 2003 RMP on these populations must not appreciably increase genetic and demographic risks facing these populations and be designed to permit achievement of viable functions, unless the plan demonstrates that the likelihood of survival and recovery of the entire ESU in the wild would not be appreciably reduced by greater risks to that individual population.

There are two populations within the Nooksack Management Unit: the North Fork Nooksack River and the South Fork Nooksack River populations. Both populations are classified as Category 1 populations (see Table 4 of the Evaluation and Recommended Determination). The number of reported strays between the South Fork and North Fork Nooksack River populations is fairly large (see page 18 of NMFS 2001b as cited in the Evaluation and Recommended Determination). However, it is difficult at this time to discern whether the fish moving between the forks are expected to influence one another's population or extinction dynamics. Length-at-age of fish from the two streams is not significantly different. Additionally, Kendall Creek hatchery (North Fork Nooksack River) stocks are also listed under the ESA. Production from the Kendall Creek hatchery contributes extensively to the abundance and return of the North Fork Nooksack River population. The 1997 to 2001 five-year average spawning escapement into the North Fork Nooksack River is 680 when hatchery-origin production is considered (Table 1, page

94 in Appendix A of the 2003 RMP). This is compared to the five-year average natural-origin spawning escapement of 132 mentioned earlier. This hatchery-origin production adds some additional buffer to the risks to this population in the short term.

All U.S. fishery-related mortality in 2003 on the North Fork Nooksack River population will be incidental, taken in fisheries targeting other healthy populations or species. Given the anticipated Canadian exploitation rate, the entire southern United States exploitation rate on this population would essentially have to be eliminated (i.e., to less than 4 percent), to achieve the NMFS' rebuilding exploitation rate ceiling of 17 percent for this population. Based on the preliminary pre-season FRAM model run 1603 (dated April 9, 2003), seventy-four percent of the SUS fishery-related mortality to the Nooksack River populations in 2003 is anticipated to occur in treaty Indian fisheries. NMFS, as a matter of policy, based primarily on treaty obligations, has sought not to entirely eliminate harvest, instead accepting potential, slight increased risk to the species to provide limited fishery opportunity. This approach is particularly important to the tribes, recognizes their treaty rights and NMFS' trust responsibility (NMFS 2002c as cited in the of the Evaluation and Recommended Determination). The treaty tribes have a right and priority to conduct their fisheries within the limits of conservation constraints. Because of the Federal government's trust responsibility to the tribes, NMFS is committed to considering the co-managers' judgment and expertise when it comes to the conservation of trust resources. However, the opinion of the co-managers and their immediate interest in fishing is balanced against NMFS responsibilities under ESA. Based on these considerations, NMFS concludes in the Evaluation and Recommended Determination that the 2003 RMP Nooksack Management Unit's minimum fishery regime exploitation rate that would be imposed on the southern United States fisheries in 2003, in this one-year 2003 RMP, achieves this balance.

Comment 13: The Proposed Evaluation and Pending Determination, on page 44, states that the Canadian exploitation rate on the ESU populations in 2003, given similar forecasts of abundance in 2003 to recent years, will remain similar to the rates experienced during the past two seasons, under the 2001 RMP. The commenter questions the assumption of the Proposed Evaluation and Pending Determination that Canadian exploitation rates will remain similar to exploitation rates experienced during the past two years.

Response: NMFS agrees with the commenter. The Proposed Evaluation and Pending Determination incorrectly imply that the Canadian exploitation rate on Puget Sound chinook salmon was similar in 2001 and 2002. More recent information does suggest that the Canadian fisheries exploitation rate on Puget Sound chinook salmon was greater in 2002, when compared to 2001 (D. Simmons, NMFS, pers. com. to K. Schultz, NMFS, April 14, 2003). NMFS modified the Evaluation and Recommended Determination to correctly reflect this understanding.

The co-managers applied the 2001 RMP to manage the U.S. fisheries during the 2001 season. Escapement results in 2001 were some of the highest during the recent 1998 to 2001 five-year period reviewed (see Table 5 of the Proposed Evaluation and Pending Determination). In 2002, applying the same 2001 RMP fishery management regime, the preliminary estimate of total

Puget Sound chinook salmon escapement , although preliminary (W. Beattie, NWIFC, e-mail message to K. Schultz, NMFS, April 15, 2003), was even greater than the total escapement observed in 2001. Based on the best available information, the Canadian exploitation rate on the ESU populations in 2003, given similar abundance forecasts, will remain similar to the rates experienced in 2002. As such, NMFS anticipates the pattern of stable to increasing escapement trends to continue

Comment 14: The commenter expressed concern that once the co-managers determine that greater catches can be achieved under fixed escapement goal management, that there will “be a rush back to that strategy.”

Response: The 4(d) Rule provided limits on ESA section 9 take prohibitions, i.e., take prohibitions would not apply to the plans and activities set out in the rule if those plans and activities met the rule's criteria. One of those limits (Limit 6) applies to joint tribal and state RMPs. NMFS is evaluating the co-managers’ one-year RMP, which applies to the fishing season from May 1, 2003, through April 30, 2004 only. If NMFS determines that the 2003 RMP adequately meets the requirements of Limit 6 under the 4(d) Rule, the ESA take prohibitions would not apply to those fisheries operating consistent with the RMP. In the event that the co-managers alter fishery management strategies such that they are inconsistent with the 2003 RMP, those fisheries would no longer be consistent with this 4(d) Rule determination, and would require re-evaluation under the ESA.

Comment 15: Page 9 of the Proposed Evaluation and Pending Determination states that the technical basis for the 2003 RMP’s interim escapement goals vary among management units (see footnotes on Table 14, page 57 of the 2003 RMP). In some cases interim escapement goals are an historical average of escapement from a base period of relatively high abundance. The commenter questioned whether these escapement goals were derived from a base period of relatively high abundance.

Response: The 2003 RMP Skagit Summer/Fall Management Unit’s interim (upper) escapement goal is based on the average of escapement from 1965 to 1977. The 2003 RMP Skagit Spring Management Unit’s interim (upper) escapement goal is based on the average of escapement from 1960 to 1974. The 2003 RMP Green River Management Unit’s interim (upper) escapement goal is based on the average of escapement from 1965 to 1976. Both the 2003 RMP Skokomish and the Mid-Hood Canal Management Units’ interim (upper) escapement goal are based on the average of escapement from 1965 to 1976. Generally, the average escapement derived from these base years was higher than recent year averages. For example, escapement in the Skagit River during the base period ranged from 8,117 to 23,234, and averaged 14,830. The recent 1998 to 2001 five-year average escapement for the summer/fall populations is 11,026 and ranged from 4,872 to 16,930.

Comment 16: The Proposed Evaluation and Pending Determination states, on page 14, that fishing-related mortality on populations above critical levels but below viable levels (as

demonstrated with a high degree of confidence) must not appreciably slow rebuilding to viable function. The commenter suggested that some management units within this classification have exploitation rates greater than 50 percent, and in those cases the exploitation rate would appreciably slow rebuilding to viable function.

Response: A population with a high productivity could rebuild with a 50 percent exploitation rate, while a population with a low productivity might struggle under a 20 percent exploitation rate. Based on the preliminary pre-season FRAM model run 1603, two management units (Nisqually and the Skokomish Management Units) within the classification of above the critical levels but not at viable levels will experience exploitation rates greater than 50 percent during the 2003 season. The Nisqually Management Unit is managed as a terminal, in-river fishery to meet or exceed an escapement goal of 1,100 naturally spawning chinook salmon (see page 156 of the 2003 RMP). The Nisqually River population is showing an increasing escapement trend (see Table 6 of the Proposed Evaluation and Pending Determination). The Skokomish Management Unit is also managed as a terminal fishery to achieve an escapement goal of 3,650. The Skokomish Management Unit's escapement goal of 3,650 spawners is composed of 1,650 natural-origin spawners and 2,000 hatchery-origin spawners. If the naturally spawning component of this population is anticipated to fall below 1,200 spawners or the hatchery component of this population is expected to result in less than 1,000 spawners, "additional terminal fishery management measures will be taken, with the objective of meeting or exceeding these spawner levels" (page 160 of the 2003 RMP). The Skokomish River natural population is showing a stable escapement trend (see Table 6 of the Proposed Evaluation and Pending Determination). Since these management units will be managed as terminal fisheries to meet or exceed escapement objectives, based on past performances of the fisheries under similar conditions, the current status of the populations, and the preliminary 2003 return information, it is expected that the 2003 RMP will not appreciably reduce the populations' contribution to the likelihood of the ESU's survival and recovery or preclude movement toward achieving viable VSP thresholds, as required by the 4(d) Rule.

Comment 17: Page 32 of the Proposed Evaluation and Pending Determination states that in the case of the White River Management Unit, the fisheries simulation model (FRAM) was modified by the co-managers to incorporate only White River fingerling tag codes, which show a slightly different harvest distribution than yearlings that comprise the Pacific Salmon Indicator Stock (page 147 of the 2003 RMP, WDFW and NWIFC 2003 as cited in Proposed Evaluation and Pending Determination). The inclusion of the fingerling data along with the yearling data is thought to be more representative of the naturally produced population. The changed [adjusted] 2003 RMP's recovery exploitation rate of 20 percent is slightly greater than the 17 percent recovery exploitation rate in the 2001 RMP. The commenter questions the consistency between the managers desire "to incorporate only White River fingerling tag codes" in the new methodology with the statement expressing the need to include fingerling data along with the yearling data that is thought to be more representative of the naturally produced population.

Public Comments and Responses

Response: NMFS agrees with the commenter. NMFS modified the sentence in the Proposed Evaluation and Pending Determination on page 32 to “The incorporation of only the White River fingerling tag codes is thought to be more representative of the naturally produced population” in the Evaluation and Recommended Determination.

Comment 18: The Proposed Evaluation and Pending Determination states on page 32 that the “populations identified in the 2003 RMP correspond to the stocks described in the Salmon and Steelhead Stock Inventory and Assessment with two major differences: (1) the 2003 RMP excludes most non-native or introduced populations; and (2) the 2003 RMP recognizes four Hood Canal chinook salmon populations (Duckabush, Dosewallips, Hamma Hamma, and Skokomish Rivers) rather than the single population defined in the Salmon and Steelhead Stock Inventory and Assessment document.” The commenter questioned the accuracy of this statement with respect to the populations identified in the Salmon and Steelhead Stock Inventory and Assessment for the Snohomish River.

Response: NMFS agrees with the commenter. The 1985 Salmon and Steelhead Stock Inventory and Assessment report identified four populations for the Snohomish River. Consistent with the current chinook salmon population delineation forwarded by the Puget Sound TRT, the 2003 RMP identifies two populations within the Snohomish River. NMFS modified the Evaluation and Recommended Determination to correctly reflect the 1985 Salmon and Steelhead Stock Inventory and Assessment population delineations for the Snohomish River.

Comment 19: The 2003 RMP Skokomish Management Unit’s escapement goal of 3,650 spawners is composed of 1,650 natural-origin spawners and 2,000 hatchery-origin spawners. The Skokomish Management Unit’s critical escapement threshold of 1,300 spawners is composed of 800 natural-origin spawners and 500 hatchery-origin spawners. Given natural production estimates made for the system, the commenter questioned the ratio between the escapement goals, given proposed annual hatchery releases of 3,830,000 smolts and 120,000 yearlings into the Skokomish River.

Response: NMFS realizes that actual natural production levels will vary from year to year. The Skokomish Management Unit is managed under the 2003 RMP as a terminal fishery to achieve the escapement goal of 3,650. The Skokomish Management Unit’s proposed escapement goal of 3,650 spawners is composed of 1,650 natural-origin spawners and 2,000 hatchery-origin spawners. If the naturally spawning component of this population is anticipated to fall below 1,200 spawners or if the hatchery component of this population is expected to result in fewer than 1,000 spawners, “additional terminal fishery management measures will be taken, with the objective of meeting or exceeding these spawner levels” (page 160 of the 2003 RMP). These escapement objectives are designed to meet hatchery broodstock needs and to provide optimum production from the natural system. This management unit will be managed by the co-managers in 2003 for these escapement objectives regardless of the actual magnitude of the hatchery juvenile chinook salmon release for the parent brood years.

Comment 20: The commenter raised the issue that the Proposed Evaluation and Pending Determination fails to critically examine concerns about the inclusion of non-indigenous hatchery-origin fish in determining escapement.

Response: The compositions of escapement thresholds are described in Table 2 of the Proposed Evaluation and Pending Determination. Escapement thresholds are defined in terms of natural-origin recruits (NORs) for 4 of the 14 management units within the ESU (Nooksack, Stillaguamish, Snohomish, and Lake Washington Management Units). Additionally, NMFS' rebuilding exploitation rates are based on an assessment of the natural-origin production. In remaining management units with hatchery production, it is currently difficult or impossible to distinguish between hatchery-origin and wild-origin fish on the spawning grounds. Mass-marking programs have been or will be implemented for most hatcheries releasing chinook salmon in Puget Sound, allowing for future differentiation between returning hatchery-origin and natural-origin adults in natural spawning areas. However, results from marked hatchery adult returns for a complete brood year will not be available for several years. The commenter also refers to a non-indigenous hatchery-origin fish level of 10 percent as a concern to NMFS. There are currently no guidelines in place that define or limit the acceptable or appropriate proportion of hatchery fish on the spawning grounds. A recovery plan, for Puget Sound chinook salmon is currently being developed that will address this issue.

Comment 21: The commenter expressed the concern that the Proposed Evaluation and Pending Determination did not critically examine the interim escapement goals proposed in the 2003 RMP or the robustness of the methods by which these goals were determined.

Response: Page 26 of the Proposed Evaluation and Pending Determination addressed the evaluation of the 2003 RMP's interim escapement goals. The 2003 RMP includes viable thresholds (interim escapement goals) for all populations or management units (see Table 2 of the Proposed Evaluation and Pending Determination). The 2003 RMP's interim escapement goals are equal to, or in the case of the Elwha Management Unit, even greater than the viable thresholds included in the previously approved 2001 Puget Sound harvest RMP.

As discussed in the Proposed Evaluation and Pending Determination, NMFS has also completed comprehensive analyses for a subset of Puget Sound chinook salmon populations and derived critical and viable thresholds for those populations. NMFS' derived viable thresholds for each individual population ranged from 300 to 7,454 (see Table 5 of the Proposed Evaluation and Pending Determination). The 2003 RMP interim escapement goals were applied to the entire management unit and not to the individual populations within that management unit. Direct comparisons between NMFS' derived viable thresholds, which were developed for individual populations, and the 2003 RMP's interim escapement goals, which were developed for management units, were made more difficult in cases where there were multiple populations within the management unit (see Table 2 of the Proposed Evaluation and Pending Determination). However, when the combined individual derived viable thresholds for populations within a given management unit are compared to the 2003 RMP's interim

escapement goal for that management unit, the 2003 RMP's interim escapement goals met or exceeded all NMFS' derived upper (viable) thresholds. The interim escapement goals proposed in the 2003 RMP are, therefore viewed by NMFS as adequately protective and conservative, as described in the Proposed Evaluation and Pending Determination.

Comment 22: The commenter proposed that fisheries management under the 2003 RMP should be structured so that the critical abundance level has an extremely low probability of being approached.

Response: NMFS agrees with the commenter, but considers the Proposed Evaluation and Pending Determination language to already satisfactorily reflect this concern. The 2003 RMP's recovery exploitation rates explicitly include criteria requiring a low probability of falling below the critical threshold. Most critical abundance thresholds included in the 2003 RMP are well above those levels that NMFS would consider being critical thresholds, due to the inclusion of an additional buffer against falling to that level because of harvest actions. For the Skagit Summer/Fall, Skagit Spring, Stillaguamish, and Snohomish Management Units with adequate databases, the 2003 RMP's recovery exploitation rates are calculated by the co-managers to: (1) result in escapements that are less than the point of instability no more than five percent more often than if no harvest had occurred *and* either (a) a high probability (at least 80 percent) of the spawning escapement increasing in 25 years to a specified threshold **or** (b) the percentage of escapements less than this threshold level at the end of 25 years differed from a no harvest regime by less than 10 percent (page 21 of the 2003 RMP).

Comment 23: The commenter expressed that there is no transparent link made in the Proposed Evaluation and Pending Determination between any ceiling exploitation rate and minimum escapement. The commenter also stated that nowhere is the cessation of any fishery entertained as a conservation measure for listed chinook salmon.

Response: As referenced in the response to Comment 22, for the management units with adequate databases (Skagit Summer/Fall, Skagit Spring, Stillaguamish, and Snohomish Management Units), the 2003 RMP's recovery exploitation rates are calculated by the co-managers to have a direct link with a minimum escapement level. For other management units, the 2003 RMP provides protective management objectives that have contributed to stable or increasing escapement trends.

NMFS has also completed comprehensive analyses for a subset of Puget Sound chinook salmon populations and derived critical and viable thresholds for those populations. These thresholds were used by NMFS to calculate rebuilding exploitation rates for these populations. NMFS established rebuilding exploitation rates for 9 of the 22 populations within the ESU (see Table 12 of the Proposed Evaluation and Pending Determination). NMFS' rebuilding exploitation rates are considered total exploitation rate ceilings for that population. For individual populations, exploitation rates at or below the NMFS' rebuilding exploitation rates will not appreciably reduce the likelihood of survival and recovery of that population, under current environmental

Public Comments and Responses

conditions. A requirement that the RMP must consider the cessation of any particular fishery is not a criterion of the 4(d) Rule.

ESA 4(d) Tracking Number: NWR/4d/06/2003/001

ESA Section 7 Tracking Number: F/NWR/2003/00174